INTEGRATION OF COMPLEMENTARY NPN AND PNP InAlAs/InGaAs HBTs

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Abstract

In this work, monolithic integration of NPN and PNP InAlAs/InGaAs complementary HBTs was demonstrated using a regrowth approach by MBE. The integrated HBTs showed little degradation over similar discrete devices. The DC gain was 35 for both integrated NPN and PNP HBTs. f_T of 79.6GHz and f_{max} of 109GHz were achieved for NPN devices while f_T of 11.6GHz and f_{max} of 22.6 GHz were achieved for PNP devices.